



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

3100 Port of Benton Blvd • Richland, WA 99354 • (509) 372-7950

June 27, 2007

Mr. Michael J. Weis, Acting Manager  
Richland Operations Office  
United States Department of Energy  
P.O. Box 550, MSIN: A7-50  
Richland, Washington 99352

**RECEIVED**  
JUN 29 2007  
**EDMC**

Re: Approval of Criteria and Toxic Air Emissions Notice of Construction (NOC)  
Application, 100B Export Water Enhancements

- References: 1. USDOE-RL Letter 07-SED-0216, *Transmittal of Two Regulatory Documents for Review and Approval Related to Proposed Hanford Facility Project 100B Export Water Enhancements (Project L-626)*, dated April 10, 2007. 0072671  
2. Ecology Letter, *Determination of Complete Application, 100B Export Water Enhancements*, dated April 25, 2007. 0072806

Dear Mr. Weis:

The United States Department of Energy-Richland Operations petitioned for approval of a Notice of Construction for the proposed 100B Export Water Enhancement (Reference 1). Ecology determined that your application was complete (Reference 2). This letter issues approval for the petitioned operations.

Enclosed is ORDER No. **DE07NWP-002**, authorizing the proposed operations. The ORDER was issued based upon voluntary limitations of Washington Administrative Code 173-400-091. The enclosed ORDER may be appealed. Appeal procedures are described in the ORDER. Administrative revision of the Hanford Air Operating Permit, to incorporate provisions of this ORDER as requested in Reference 1, will follow this issuance.

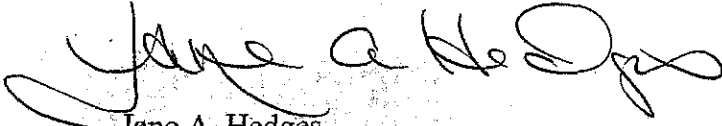
This authorization can be modified, suspended, or revoked, in whole or in part, if Ecology finds that, due to inaccuracies in the petition request, compliance with ambient air quality standards is not ensured.

A public notice and comment period was held from May 14 through June 13, 2007, for the approval proposed by Ecology in Reference 2. Thirteen comments, including nine from your staff were received during the comment period. The Responsiveness Summary prepared to address comments is available upon the Ecology website at <http://www.ecy.wa.gov/programs/nwp/currentnews.htm>.

Mr. Michael J. Weis  
June 27, 2007  
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If you have any questions, contact Doug Hendrickson at 509-372-7983.

Sincerely,



Jane A. Hedges  
Program Manager  
Nuclear Waste Program

dh/pll  
Enclosure

cc: Laurie Kral, EPA  
Mary Jarvis, USDOE  
Tom Beam, FH  
Curt Clement, FH  
Stuart Harris, CTUIR  
Gabriel Bohnee, NPT  
Russell Jim, YN  
Susan Leckband, HAB  
Ken Niles, ODOE  
John Martell, WDOH  
Administrative Record: AIR Permits H-0-9  
Environmental Portal

# **CRITERIA AND TOXIC AIR EMISSIONS NOTICE OF CONSTRUCTION APPROVAL ORDER CONDITIONS AND RESTRICTIONS**

## **REGULATORY AUTHORITY:**

Pursuant to the Washington State Department of Ecology *General Regulations for Air Pollution Sources*, Chapter 173-400 Washington Administrative Code (WAC), *Controls for New Sources of Toxic Air Pollutants*, Chapter 173-460 WAC, and New Source Performance Standards (NSPS) promulgated under Subpart IIII (Title 40 Code of Federal Regulations (CFR), Part 60.4200 *et seq.*), and WAC 173-400-091, specifically, Ecology finds the following:

## **FINDINGS:**

1. The United States Department of Energy proposes to modify their existing facility (Hanford) located in Richland, Washington.
2. A Notice of Construction (NOC) application was submitted on April 10, 2007. The application was found to be complete on April 23, 2007.
3. Hanford is an existing major stationary source that emits more than 250 tons of a regulated pollutant per year.
4. The proposed project consists of installing and operating three diesel engines to pump water and installing up to two diesel fuel storage tanks in the 100B Area of the Hanford Site. The water is intended for potable, process, and fire suppression uses.
5. The proposed project will install the three diesel engines as emergency use engines subject to Subpart IIII NSPS of 40 CFR §60.4200 *et seq.*
6. Hanford is located in a Class II Area designated as "attainment" for the purpose of NOC permitting for all pollutants.
7. Emissions of criteria pollutants from the proposed project are below the Prevention of Significant Deterioration Significant Emission Rates.
8. Criteria air pollutant emissions from the proposed project are below the *de minimus* levels in WAC 173-400-110(5)(d) with the exception of nitrogen oxides.
9. Toxic Air Pollutants (TAPs) from the proposed project are below the Small Quantity Emission Rates (SQERs) of WAC 173-460-080(2)(e).
10. The Best Available Control Technology (BACT) and Toxics-Best Available Control Technology (T-BACT) for this project have been determined to be the use of 40 CFR Part 89 compliant engines.
11. The proposed project, if constructed and operated as herein required, will provide BACT and T-BACT.

12. The proposed project, if operated as herein required, will be in accordance with applicable rules and regulations, as set forth in Chapter 173-400 WAC, Chapter 173-460 WAC, and NSPS Subpart IIII and the operation thereof will not result in ambient air quality standards being exceeded.

13. The project will have no significant impact on air quality.

**THEREFORE, IT IS ORDERED** that the project as described in said NOC application, and as detailed in emission estimates, and impact and control technology assessments submitted to Ecology in reference thereto, is approved for construction, installation, and operation, provided compliance with the conditions and restrictions described below. This ORDER will be identified as NOC ORDER **DE07NWP-002**.

## 1.0 SPECIFIC APPROVAL CONDITIONS

### 1.1 Effective Date

The effective date of this authorization will be that as signed in Section 3.0. All references to standards, procedures or test methods will be to those in effect as of the effective date of this ORDER.

### 1.2 Emission Limits

#### 1.2.1 Visible emissions will not exceed:

1.2.1.1 Twenty percent during acceleration<sup>1</sup> mode [WAC 173-400-040(1), 40 CFR §60.4205(b), and 40 CFR §89.113(a)(1)].

1.2.1.2 Fifteen percent during lugging mode [40 CFR §60.4205(b), and 40 CFR §89.113(a)(2)].

1.2.1.3 Fifty percent during peak in either acceleration or lugging mode [WAC 173-400-040(1)(a), 40 CFR §60.4205(b), and 40 CFR §89.113(a)(3)].

1.2.2 Emissions of Nitrogen oxides (NO<sub>x</sub>) and Non-methane Hydrocarbons (NMHC) will not exceed 14.2 tons per year [WAC 173-400-091, AP 42<sup>2</sup> emission factors for engines in NOC application operating 500 hours per year].

1.2.3 Emissions of Carbon Monoxide (CO) will not exceed five tons per year [WAC 173-400-110(5)(d)].

1.2.4 Emissions of particulate matter (PM) will not exceed 0.75 tons per year [WAC 173-400-110(5)(d)].

1.2.5 Emissions of Toxic Air Pollutants (TAPs), as identified within Table 1, will not exceed SQERs of WAC 173-460-080(2)(e).

**Table 1: Project TAP SQERs**

Pollutant	Chemical Abstracts Service Registry Number	TAP Class	SQER	
			Lb/yr	Lb/hr
Benzene	71-43-2	A	20	
Toluene	108-88-3	B		5

<sup>1</sup> The terms "acceleration" and "lugging" shall be defined as implemented in 40 CFR §86.884-7(2) and (3).

<sup>2</sup> AP 42, Fifth Edition, *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources*, <http://www.epa.gov/ttn/chief/ap42/index.html>

**Table 1: Project TAP SQERs**

Pollutant	Chemical Abstracts Service Registry Number	TAP Class	SQER	
			Lb/yr	Lb/hr
Xylene	1330-20-7	B		5
1,3-Butadiene	106-99-0	A	0.5	
Formaldehyde	50-00-0	A	20	
Acetaldehyde	75-07-0	A	50	
Acrolein	107-02-8	B		0.02

- 1.2.6 Emissions of Polyaromatic Hydrocarbons (PAHs) will not result in ambient concentrations exceeding  $4.8\text{E-}04 \mu\text{g}/\text{m}^3$  [WAC 173-460-080(3)].
- 1.2.7 Emissions of sulfur dioxide will not exceed two tons per year [WAC 173-400-110(5)(d)].
- 1.2.8 Emission rates of engines installed under this ORDER shall not exceed values identified in Table 2 [40 CFR §60.4205(b) and 40 CFR §89.112].

**Table 2: Engine Emission Rate Limitations**

Pollutant	Engine Rating	gram/kilowatt-hour (g/kW-hr)	pound/horsepower-hour (lb/HP-hr)
Carbon Monoxide	$130 \leq \text{kW} \leq 560$ ( $174 \leq \text{HP} \leq 751$ )	3.5	$5.8\text{E-}03$
Particulate Matter	$130 \leq \text{kW} \leq 560$ ( $174 \leq \text{HP} \leq 751$ )	0.2	$3.3\text{E-}04$
Non-methane Hydrocarbons and Nitrogen Oxides	$130 \leq \text{kW} \leq 560$ ( $174 \leq \text{HP} \leq 751$ )	4.0	$6.6\text{E-}03$
	$\text{kW} > 560$ ( $\text{HP} > 751$ )	6.4	$1.1\text{E-}02$

### 1.3 Compliance Demonstration

- 1.3.1 Compliance with Approval Condition 1.2.1 will be met by Tier 1 Visible Emissions Survey requirements of the Hanford Air Operating Permit unless otherwise defined. Each engine authorized by this ORDER shall be surveyed for visible emissions during maintenance and readiness testing and emergency-use based upon the following frequency or events.
- 1.3.1.1 During maintenance and readiness testing, a visible emissions survey shall be conducted with each readiness test startup.
- 1.3.1.2 During emergency-use operations exceeding, or anticipated to exceed, eight hours duration, a visible emissions survey shall be conducted daily.
- 1.3.1.3 Visible emissions of each engine shall be determined by procedures detailed in 40 CFR Part 86, Subpart I [40 CFR §86.884 *et seq.*] within 90 days of initial startup and as required by Ecology.
- 1.3.2 Compliance with Approval Conditions 1.2.2, 1.2.3, and 1.2.4 will be demonstrated by:
- 1.3.2.1 Engine Limitation
- 1.3.2.1.1 Installation of engines certified to meet emission limitations of 40 CFR Part 89 [40 CFR §60.4211(c)].

- 1.3.2.1.2 Installation of one engine rated no higher than 450 horsepower (HP) and two engines rated no higher than 900 HP.
- 1.3.2.2 Operational Limitation
  - 1.3.2.2.1 All recommended operation and equipment maintenance provisions supplied by the manufacturer(s) of the engine(s) will be current [40 CFR §60.4211(a)].
  - 1.3.2.2.2 Operational monitoring in accord with Approval Condition 1.5.
  - 1.3.2.2.3 Operational hours of use for each engine under this ORDER, for purposes of maintenance checks and readiness testing shall not exceed 100 hours per year unless approved by the Administrator of the United States Environmental Protection Agency [40 CFR §60.4211(e)].
  - 1.3.2.2.4 Operational hours of use during emergency conditions shall not be limited provided maintenance of records of emergency use defined in Approval Condition 1.6.
- 1.3.3 Compliance with Approval Condition 1.2.5 will be demonstrated by calculation of the sum of TAP emissions from all engines authorized under this ORDER employing air pollutant emission factors of AP 42<sup>3</sup>, Table 3.3-2, for engines less than 600 HP and AP 42, Table 3.4-3<sup>4</sup>, for engines 600 HP and higher.
- 1.3.4 Compliance with Approval Condition 1.2.6 will be demonstrated by calculation of the sum of PAH TAP emissions from all engines authorized under this ORDER employing PAH air pollutant emission factors of AP 42, Table 3.3-2, for engines less than 600 HP and AP 42, Table 3.4-4, for engines 600 HP and higher. Dispersion analysis shall demonstrate that calculated emissions comply with the standard of Approval Condition 1.2.6.
- 1.3.5 Compliance with Approval Condition 1.2.7 will be demonstrated by use of fuel containing:
  - 1.3.5.1 No greater than 0.05 weight percent sulfur (500 parts per million by weight) from installation to May 30, 2010 [40 CFR §60.4207(a), 40 CFR §80.510(a)].
  - 1.3.5.2 No greater than 0.015 weight percent sulfur (15 parts per million by weight) on and after June 1, 2010 [40 CFR §60.4207(b), 40 CFR §80.510(b)].
- 1.3.6 Compliance with Approval Condition 1.2.8 shall be demonstrated by:
  - 1.3.6.1 Procuring and installing only engines certified to emission standards of 40 CFR §60.4205(b) for the same model year and maximum engine rating [40 CFR §60.4211(c)].
  - 1.3.6.2 Operating and maintaining the stationary compression ignition internal combustion engines and control devices according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer [40 CFR §60.4211(a)].
  - 1.3.6.3 Installing and configuring the engines according to manufacturer specifications [40 CFR §60.4211(c)].
  - 1.3.6.4 Maintaining records of engine certification as detailed in Approval Condition 1.6 [40 CFR §60.4211(c)].

<sup>3</sup> AP 42, Fifth Edition, *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources*, <http://www.epa.gov/ttn/chief/ap42/index.html>

<sup>4</sup> Table 3.4-3 of AP 42 does not estimate emissions of 1,3-Butadiene for larger engines. An emission factor of zero shall be applied to 1,3-Butadiene for engines 600 HP or larger.

## 1.4 Manuals

Operations and Maintenance (O&M) manuals for all equipment, procedures, and controls associated with the proposed activities that have the potential to affect emissions to the atmosphere will be followed. Manufacturer's instructions may be referenced but must be adhered consistent with Approval Condition 1.3.6.2. The O&M manuals will be updated to reflect any modifications of the process or operating procedures. Copies of the O&M manuals will be available to Ecology upon request.

## 1.5 Monitoring

A non-resettable hour meter will be installed and operated on each engine approved under this ORDER [40 CFR §60.4209(a)].

## 1.6 Recordkeeping

Specific records will be kept on the Hanford Site by the Permittee and made available for inspection by Ecology upon request. The records must be organized in a readily accessible manner and cover a minimum of the most recent 60 month period, except when otherwise specified. The records to be kept must include the following:

1. Visual Emission surveys and tests conducted pursuant to Approval Condition 1.3.1.
2. Manufacturer's engine certifications, required by Approval Conditions 1.3.2.1.1 and 1.3.6.1 will be retained from initial use through the ten year life of the engines [40 CFR §1039.101(g)(1)].
3. Maintenance records for maintenance conducted pursuant to Approval Condition 1.3.2.2.1.
4. Records of cumulative operating hours for each engine, calculated semi-annually, will be retained for a minimum of thirty-six months.
5. Calculations and dispersion analyses prepared pursuant to Approval Conditions 1.3.3 and 1.3.4, calculated semi-annually in concert with cumulative operating hour calculations, will be retained for a minimum of thirty-six months.
6. Diesel fuel quality, pursuant to Approval Condition 1.3.5, shall be documented by annual fuel analysis or vendor documentation of fuel purchases from retail outlet(s) that demonstrate compliance with diesel fuel quality standards of 40 CFR §80.510 for all purchases.
7. Records of emergency use operational duration and the basis of the emergency.

## 2.0 NOTIFICATIONS AND SUBMITTALS

### 2.1 Addressing

Any required notifications and reports required under these Approval Conditions must be sent to:

Program Manager  
Washington State Department of Ecology  
Nuclear Waste Program  
3100 Port of Benton Boulevard  
Richland, Washington 99354

### 2.2 Operational Notice

Operational notification will be made within 30 days following initial startup of the engines covered by this ORDER.

### 2.3 Reporting

Visible emission surveys, when conducted pursuant to Compliance Demonstration Requirement 1.3.1, and demonstrating visible emissions in excess of those allowed under Approval Condition 1.2.1, shall be submitted to Ecology in accordance with WAC 173-400-107 with an assessment of the cause of visible emissions and a report of the actions taken to prevent further excess visible emissions.

Visible emissions testing required under Approval Condition 1.3.1.3, shall be reported within 45 days after completing on-site testing.

Emissions of criteria and toxic pollutants from engines approved under this ORDER with limitations established within Approval Conditions 1.2.2 through 1.2.7 will be compiled into estimates and reported annually, beginning as part of the calendar year 2007 inventory of airborne emissions, pursuant to WAC 173-400-105.

## 3.0 APPROVAL ORDER AND RESTRICTIONS

This Authorization may be modified, suspended, or revoked in whole, or in part, for cause including, but not limited to, the following:

1. Violating any terms or conditions of this authorization.
2. Obtaining this authorization by misrepresentation, or failure to fully disclose all relevant facts.

The provisions of this authorization are severable. If any provision or application of any provisions of this authorization is held invalid, the application of such provision to their circumstances, and the remainder of this authorization, will not be affected thereby.



Any person aggrieved by this ORDER may obtain review thereof by application, within 30 days of receipt of this ORDER, to:

Pollution Control Hearings Board  
P.O. Box 40903  
Olympia, Washington 98504-0903

Concurrently, copies of the application must be sent to:

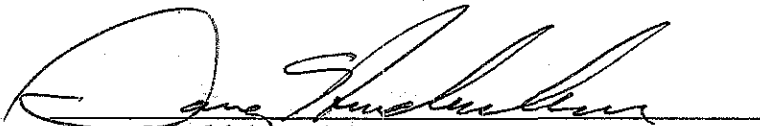
Washington State Department of Ecology  
P. O. Box 47600  
Olympia, Washington 98504-7600

Washington State Department of Ecology  
3100 Port of Benton Boulevard  
Richland, Washington 99354

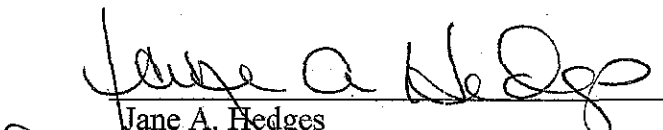
These procedures are consistent with the provisions of Chapter 43.21B RCW, and the rules and regulations adopted thereunder.

**DATED** at Richland, Washington, this 27<sup>th</sup> day of June 2007.

**REVIEWED AND PREPARED BY:**

  
Doug Hendrickson, P.E.

**APPROVED BY:**

  
Jane A. Hedges  
Program Manager  
Nuclear Waste Program  
Washington State Department of Ecology

